<u>In the Claims</u>:

Claim 1 (original): In a laser-based system that generates pulsed laser emission and includes an extra-cavity optical modulator for providing in response to control commands an output transmitting state that permits laser output to propagate toward a target in the form of working laser output and an output blocking state that predominantly prevents working laser output from propagating toward the target, the laser system applying during its operation varying thermal load conditions to the extra-cavity optical modulator as a consequence of nonuniform intervals between successive output transmitting states, the varying load conditions causing undesirable distortion of the working laser output, a method of reducing the load variation and the undesirable distortion of the working laser output, comprising:

generating a series of laser outputs at a substantially constant laser output repetition rate in which mutually adjacent ones of the laser outputs are separated from each other by generally uniform laser output intervals;

applying RF pulses to the extra-cavity optical modulator to produce a series of output transmitting states at an RF pulse repetition rate in which mutually adjacent ones of the output transmitting states are separated from each other by RF pulse intervals of sufficient uniformity to maintain variations of thermal loading of the extra-cavity optical modulator to within a preassigned operational tolerance; and

timing the production of the RF pulses and the generation of the laser outputs in response to control commands to achieve noncoincidence of an output transmitting state and a corresponding laser output during a noncoincident RF pulse to prevent working laser output and to achieve coincidence of an output transmitting state and a corresponding laser output during a coincident RF pulse to transmit working laser output to achieve impingement of targets at different working laser output intervals.

Claim 2 (original): The method of claim 1, in which an RF pulse has an RF power value and an RF duration and in which the working laser output has a power value, further comprising:

changing the RF power value of a coincident RF pulse to cause a corresponding change in the power value of the working laser output.

Claim 3 (original): The method of claim 2, in which the product of the RF power value and RF duration remains substantially constant in response to the changing of the RF power value of the RF pulse.

Claim 4 (original): The method of claim 3 in which consecutive working laser outputs produced by respective coincident RF pulses have different power values.

Claim 5 (original): The method of claim 1 in which the thermal loading variation is maintained within 5%.

Claim 6 (original): The method of claim 2 in which consecutive coincident and noncoincident RF pulses have different RF durations.

Claim 7 (original): The method of claim 2 in which consecutive coincident and noncoincident RF pulses have different RF power values.

Claim 8 (original): The method of claim 2 in which consecutive coincident and noncoincident RF pulses have similar RF power values and similar RF durations.

Claim 9 (original): The method of claim 2 in which the RF power values of coincident RF pulses are smaller than the RF power values of consecutive noncoincident RF pulses, and the consecutive coincident and noncoincident RF pulses have about the same RF durations, further comprising:

introducing at least one additional noncoincident RF pulse during an adjacent laser pulse interval to the working laser output such that the sum of the products of the respective RF power values and RF durations of the respective coincident and additional noncoincident RF pulse substantially equals the product of the RF power value and RF duration of the noncoincident RF pulse.

Claim 10 (original): The method of claim 1 in which the difference between the laser output intervals and RF pulse intervals is sufficiently small to maintain variations of thermal loading of the extra-cavity modulator to within a preassigned operational tolerance.

Claim 11 (original): The method of claim 1 in which RF pulses comprise RF durations that are shorter than about 30% of adjacent laser output intervals.

Claim 12 (original): The method of claim 11 in which the RF pulses comprise RF durations that are longer than about 0.1 microsecond.

Claim 13 (original): The method of claim 1 in which noncoincident RF pulses are offset from initiations of respective laser outputs by a time delay that is longer than about 0.2 microsecond.

Claim 14 (original): The method of claim 1 in which intervals between mutually adjacent working laser outputs comprise different durations that approximate integral multiples of the laser output intervals.

Claim 15 (original): The method of claim 1 in which noncoincident RF pulses occur while a positioning system moves between different targets on a work piece.

Claim 16 (original): The method of claim 1 in which the control commands are adapted for on-the-fly link processing.

Claim 17 (original): The method for claim 1 in which the laser-based system is adapted for micromachining.

Claim 18 (original): The method for claim 1 in which the laser-based system is adapted for spectroscopic, biotech or R & D work.

Claim 19 (original): The method of claim 1 in which beam pointing accuracy is maintained within 0.005 mrad.

Claim 20 (original): The method of claim 1 in which the laser output repetition rate is greater than about 25 kHz.

Claim 21 (original): The method of claim 1 in which the laser output repetition rate is greater than about 40 kHz.

Claim 22 (original): The method of claim 1 in which the laser output repetition rate is greater than about 100 kHz.

Claim 23 (original): The method of claim 1 in which the working laser outputs comprise a wavelength emitted by a UV, visible, or IR laser or a harmonic thereof.

Claim 24 (original): The method of claim 1 in which at least some of the working laser outputs comprise at least two laser pulses.

Claim 25 (original): The method of claim 1 in which the distortion of the working laser output comprises beam spot size on the target.

Claim 26 (original): The method of claim 1 in which RF pulse intervals define timing windows having continuous RF power at an RF power value and the working laser output has a minor power value, and in which applying the RF pulses comprises applying RF pulses of a power value that is smaller than the RF power value such that the working laser output propagates toward the target at a higher power value than the minor power value.

Claim 27 (original): In a laser-based, workpiece processing system that generates working laser output, including a positioning system for controlling target alignment of the working laser output relative to a workpiece such that the working laser output impinges on selected electrically conductive links supported on a semiconductor wafer, and including an extra-cavity optical modulator for providing in response to control commands an output transmitting state that permits laser output to propagate toward an electrically conductive link

on a workpiece in the form of working laser output and an output blocking state that predominantly prevents working laser output from propagating toward the workpiece, the laser system applying during its operation varying thermal load conditions to the extra-cavity optical modulator as a consequence of nonuniform intervals between successive output transmitting states, the varying load conditions causing undesirable distortion of the working laser output, a method of reducing the undesirable thermal load variation and distortion of the working laser output, comprising:

generating a series of laser outputs at a substantially constant laser output repetition rate in which mutually adjacent ones of the laser outputs are separated from each other by generally uniform laser output intervals;

applying RF pulses to the extra-cavity optical modulator to produce a series of output transmitting states at an RF pulse repetition rate in which mutually adjacent ones of the output transmitting states are separated from each other by RF pulse intervals of sufficient uniformity to maintain variations of thermal loading of the extra-cavity optical modulator to within a preassigned operational tolerance;

moving the target alignment of the positioning system relative to the workpiece to address selected electrically conductive links on the workpiece;

timing the production of the RF pulses and the generation of the laser outputs to achieve noncoincidence of an output transmitting state and a corresponding laser output during a noncoincident RF pulse to prevent working laser output from damaging the workpiece whenever the positioning system is not addressing a selected electrically conductive link; and

timing the production of the RF pulses and the generation of the laser outputs to achieve coincidence of an output transmitting state and a corresponding laser output during a coincident RF pulse to transmit working laser output to achieve impingement of electrically conductive links at different working laser output intervals.

Claim 28 (currently amended): The method of claim ~~1~~ 27 in which the laser output repetition rate is greater than about 30 kHz.

Claim 29 (original): The method of claim 28 in which the positioning system addresses only a single electrically conductive link during an RF pulse.

Claim 30 (original): The method of claim 28, in which an RF pulse has an RF power value and an RF duration and in which the working laser output has a power value, further comprising:

changing the RF power value of a coincident RF pulse to cause a corresponding change in the power value of the working laser output.

Claim 31 (original): The method of claim 30, in which the product of the RF power value and RF duration remains substantially constant in response to the changing of the RF power value of the RF pulse.

Claim 32 (original): The method of claim 31 in which consecutive working laser outputs produced by respective coincident RF pulses have different power values.

Claim 33 (original): The method of claim 30 in which the RF power values of coincident RF pulses are smaller than the RF power values of consecutive noncoincident RF pulses, and the consecutive coincident and noncoincident RF pulses have about the same RF durations, further comprising:

introducing at least one additional noncoincident RF pulse during an adjacent laser pulse interval to the working laser output such that the sum of the products of the respective RF power values and RF durations of the respective coincident and additional noncoincident RF pulse substantially equals the product of the RF power value and RF duration of the noncoincident RF pulse.

Claim 34 (new): The method of claim 1 in which the working laser output comprises zero order laser output.

Claim 35 (new): The method of claim 27 in which the working laser output comprises zero order laser output.

Claim 36 (new): The method of claim 1 in which the working laser output comprises first order laser output.

Claim 37 (new): The method of claim 27 in which the working laser output comprises first order laser output.

Claim 38 (original): The method of claim 28 in which RF pulses comprise RF durations that are shorter than about 30% of adjacent laser output intervals.

Claim 39 (original): The method of claim 38 in which the RF pulses comprise RF durations that are longer than about 0.1 microsecond.

Claim 40 (original): The method of claim 28 in which noncoincident RF pulses are offset from initiations of respective laser outputs by a time delay that is longer than about 0.2 microsecond.

Claim 41 (original): The method of claim 28 in which beam pointing accuracy is maintained within 0.005 mrad.

Claim 42 (original): The method of claim 28 in which the thermal loading variation is maintained within 5%.